

[NON-VOLATILE MEMORY AND FABRICATING METHOD THEREOF]

Abstract

A non-volatile memory structure and a fabricating method thereof are described. In the fabricating method, a mask layer is formed over a substrate first. A trench is formed in the mask layer and the substrate, and then a tunnel dielectric layer is formed in the trench. A floating gate is formed inside the trench, and then the mask layer is removed. A high-voltage doped region is formed in the substrate on one side of the floating gate, serving as a first source/drain region and a control gate simultaneously. A second source/drain region is then formed in the substrate on the other side of the floating gate.